

I claim:

1. A time division duplex data frame utilized within a wireless frequency hopping digital communications system, where communications in successive data frames occur on different wireless carrier frequencies, each data frame being comprised of:

a primary data transmission period during which a first block of digital data is transmitted, where the first block of digital data has not been previously transmitted;

a redundant data transmission period during which a second block of digital data is transmitted, where the second block of digital data was previously transmitted at a different carrier frequency during the primary data transmission period of the prior data frame;

a primary data receive period during which a third block of digital data is received, where the third block of digital data has not previously been received;

a redundant data receive period during which a fourth block of digital data is received, where the fourth block of digital data was previously received at a different carrier frequency during the primary data receive period of the prior data frame.

2. The data frame of claim 1, the data frame further comprising:

a transmit preamble during which error detection information associated with the contents of the primary data transmit period and the redundant data transmit period is transmitted;

a receive preamble during which error detection information associated with the contents of the primary data receive period and the redundant data receive period is received.



9. The data frame of claim 8, in which the predetermined quality threshold is a maximum bit error rate.

10. A time division duplex data frame utilized within a wireless frequency hopping digital communications system, where communications in successive data frames occur on different wireless carrier frequencies, each data frame being comprised of:

a primary data receive period during which a first block of digital data is received, where the first block of digital data has not been previously received;

a redundant data receive period during which a second block of digital data is received, where the second block of digital data was previously received at a different carrier frequency during the primary data transmission period of the prior data frame.

11. A method for communicating data between a first device and a second device via a wireless frequency hopping digital communications link, which method is comprised of the steps of:

transmitting a first block of data from the first device to the second device during a first data frame period, where the first block of data has not been previously transmitted;

transmitting a second block of data from the first device to the second device during the first data frame period, where the second block of data was also transmitted by the first device during the data frame period immediately preceeding the first data frame period.

12. The method of claim 11, which method further comprises the steps of:

transmitting a third block of data from the second device to the first device during the first data frame period, where the third block of data has not been previously transmitted;

transmitting a fourth block of data from the second device to the first device during the first data frame period, where the fourth block of data was also transmitted by the second device during the data frame period immediately preceeding the first data frame period.

13. A method for communication data between a first device and a second device via a wireless frequency hopping digital communications link where the communications are divided into a plurality of data frames, which method is comprised of the steps of:

transmitting at least one data block within each frame from the first device to the second device, where each data block is transmitted one time;

determining that the quality of the communications link fails to satisfy a predetermined criterion;

transmitting a first data block and a second data block from the first device to the second device within each frame, the first data block containing data that has not been previously transmitted from the first device to the second device, the second data block containing data that was also transmitted from the first device to the second device during the preceeding frame.

14. The method of claim 13, in which the step of determining that the quality of the communications link fails to satisfy a predetermined criterion is further comprised of the substeps of:

measuring a bit error rate of data transmitted on the communications link;

determining that the bit error rate exceeds a predetermined maximum acceptable level.

15. A method for communication data between a first device and a second device via a wireless frequency hopping digital communications link where the communications are divided into a plurality of data frames and the first device is powered by a battery power source, which method is comprised of the steps of:

transmitting a first data block and a second data block from the first device to the second device within each frame, the first data block containing data that has not been previously transmitted from the first device to the second device, the second data block containing data that was also transmitted from the first device to the second device during the preceeding frame.

determining that the level of power remaining in the battery power source is below a predetermined threshold level;

transmitting at least one data block within each frame from the first device to the second device, where each data block is transmitted only one time;



as the contents of the primary data period during the preceeding frame, the method comprising the steps of:

receiving a first data frame, the first data frame also containing an error detection field associated with the contents of at least the first data period of the first data frame;

using the contents of the error detection field to determine that the contents of the first data period were received without any errors;

depowering a receiver circuit associated with the wireless device during receipt of at least the second data period during a second data frame immediately following the first data frame.